



**COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office**

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Acting Commissioner

May 19, 2003

Mayor Michael Bonfanti
24 Lowell Street
Peabody, MA 01960

Re: Water Management Act Permit Review # 9P-3-17-229.01

Dear Mayor Bonfanti:

The Department of Environmental Protection (the "Department" or "DEP") has completed its review of all the Water Withdrawal Permits issued in the Ipswich River Basin including the Permit issued to the City of Peabody (the "City" or "Peabody") Permit 9P-3-17-229.01 (the "Permit"). The Permit issued in 1991 authorized the City to withdraw an annual average daily volume of 0.58 million gallons per day ("MGD"). The Permit further allowed the City to increase that annual average daily volume to 0.64 MGD in 1994, to 0.69 MGD in 1999, and to 0.82 MGD in 2004. The withdrawal authorized in the Permit is in addition to the 3.89 MGD that the City was previously registered to withdraw from the Ipswich River Basin and the 1.89 MGD that the City was previously registered to withdraw from the North Coastal Basin.

In accordance with the Water Management Act Regulations, 310 CMR 36.33(4), the Department initiated a review of the Permit in 1995. As a result of that review, the Department determined that water use by all permittees in the Ipswich River Basin was below the volumes originally allocated. Accordingly, the Permit, as modified in 1997, provided that the authorized annual daily withdrawal volume shall remain at 0.58 MGD until 1999. The City appealed the Permit as modified in 1997 and the Ipswich River Watershed Association intervened in that appeal. In January 1999, the Department issued a Final Decision settling that appeal by the issuance of an Amended Modified Permit.

When the appeal was settled, the Department intended to require the permit holders in the Ipswich River Basin to file for a permit review later in 1999. The Department delayed that requirement pending the completion of the United States Geological Survey (USGS) studies of streamflow in the Ipswich River.

This information is available in alternate format. Call April McCabe, ADA Coordinator at 1-617-556-1171.

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When the USGS studies were nearing completion, on December 13, 2002, DEP issued an Order to Complete requiring that the City submit additional information. The City submitted its initial response to the Order to Complete on March 14, 2003. DEP has reviewed the City's Response to the Order to Complete and has issued the Modified Permit (enclosed herein) that reflects a balance between the public's need for a safe and reliable source of drinking water and competing environmental, economic, and recreational interests.

As a result of this review, DEP has determined that to further the purposes of the Water Management Act, it is necessary to achieve a balance throughout the year between the major hydrologic alterations in flow caused by the diversions for water supply purposes and the need to maintain the seasonal variations in flow that support the natural ecosystem. The Department has determined that maintaining high flows at certain times of the year is necessary to ensure that the river functions both as a viable habitat for aquatic life and wildlife and as a reliable source of safe drinking water. High flows scour the river bottom, maintain the floodplain ecosystem, trigger spawning runs, provide spawning habitat in the floodplains, maintain wetland hydrology and recharge aquifers. In the absence of adequate diversion thresholds, it is possible that the total volume of water diverted from the river by public water suppliers may approach or even exceed the flow remaining in the river, if droughts occur in late fall, winter or spring. Loss of water during late fall, winter and spring may adversely affect the availability of habitat, susceptibility to freezing, geomorphological processes, and other ecological values. (Ipswich River Fisheries Report, 2002)

To address these concerns, the Ipswich River Fisheries Restoration Task Group (the "Fisheries Group") recommended the streamflows that are needed to sustain a viable habitat for aquatic life accommodated to riverine conditions throughout the year. These Fisheries Group recommendations are as follows: November thru February 1.0 cfs; March thru May 2.5 cfs; June thru October 0.49 cfs.¹

To begin the process of mitigating these adverse impacts, the Department has established interim streamflow diversion thresholds. These interim streamflow diversion thresholds incorporate the recommendations of the Fisheries Group for the months, November thru February. To balance the need for drinking water with competing environmental concerns, the Department established an interim streamflow diversion threshold of 1.0 cfs for the months March thru May, in lieu of the threshold recommended by the Fisheries Group. Although the interim streamflow diversion threshold is not as protective as the threshold recommended by the Fisheries Group, it appears that the three public water suppliers that divert from the Ipswich River can meet the needs of their consumers under this threshold. The Department also established an interim streamflow diversion threshold, based on the 90th percentile magnitude for June's monthly mean discharge simulated for no-withdrawals which is approximately 3 cfs for June thru October. While still protective of ecological function, this additional interim

¹ Relying on the minimum streamflow findings in the USGS Ipswich River Habitat Study, (WRIR-01-4161) and other USGS studies in the Ipswich River Basin, the Department adopted a 0.42 cfs threshold for the low flow period, June thru October. Additional discussion of this threshold is included in the discussion of streamflow triggers for restrictions on nonessential outside water use.

streamflow diversion threshold allows the public water suppliers that divert from the Ipswich River to take advantage of high flows that occasionally occur in the summer, after significant storm events, such as hurricanes.

Because the Fisheries Group recommendations are based on the best available science, it is very possible that the Department may in the future adopt their recommendations for the months March thru May as it continues to balance the need for drinking water with competing environmental concerns. For that reason, Modified Permit expressly provides that the interim streamflow diversion thresholds shall remain in effect, only until the Department gathers sufficient information to establish additional interim streamflow diversion thresholds or final streamflow diversion thresholds. This additional information includes without limitation the ongoing supplemental modeling by the USGS to evaluate alternative management scenarios for a firm yield determination.

While these interim streamflow diversion thresholds are in effect, the Modified Permit requires that each public water supplier that diverts water from the Ipswich River identify additional actions that are needed to meet demand, after final streamflow thresholds are adopted. Thus, the Modified Permit expressly requires that the City determine whether it should place the Pine Street Well and the Johnson Street Well back on line or take additional action to optimize use of its existing surface water sources.

In addition to the interim streamflow diversion thresholds, the Department has determined that a total authorized volume of 6.36 MGD on an average annual daily basis is sufficient to meet the City's current needs. In these circumstances, the Department has decided to limit the City's permitted volume to the 0.58 MGD originally authorized in 1991.

DEP has further determined that unless and until conditions in the Ipswich River significantly improve, it is unlikely that any permittees in the Ipswich River Basin will be approved to increase their authorized withdrawals. In these circumstances, it is essential that all permittees keep their withdrawals at or below their authorized volumes.

Consistent with this purpose, the Modified Permit provides that if the City exceeds its total authorized volume of 6.36 MGD on an average annual daily basis, the City shall implement a water bank that provides for conserving at least two gallons of water for each additional gallon of water demand. To avoid this requirement, Peabody should manage its own system and its purchases of water from the MWRA so that the City does not exceed its total authorized volume.

Ipswich River Basin Performance Standards

To reduce the adverse impacts on the ability of the Ipswich River to sustain all its uses, DEP has established the following performance standards for permittees that withdraw water from the Ipswich River Basin for water supply purposes:

1. Residential per capita water use of 65 gallons per day or less;

2. Unaccounted for water of 10% or less;
3. A summer withdrawal cap based on minimizing the difference between summer (May thru September) and winter (January thru March and November thru December) withdrawals derived from each community's summer to winter withdrawal ratio.

The standards set forth above shall hereinafter be referred to collectively as the "Ipswich River Basin Performance Standards".

The standards of 65 gallons per day or less for residential per capita water use and 10% or less for unaccounted for water are taken from the Water Resources Commission performance standards for effective water conservation for public water suppliers. While these performance standards represent the minimum required for compliance with the Modified Permit, the Department believes that through the implementation of all the terms and conditions of the Modified Permit, the City can exceed the performance standards for residential per capita water use and unaccounted for water. DEP will review the Drinking Water Program's Annual Statistical Report, when evaluating compliance with these Performance Standards. The reporting requirements added in the Modified Permit are intended to standardize the information submitted to the Department to assess compliance with the Modified Permit and the Ipswich River Basin Performance Standards.

The Department has established a summer withdrawal cap for Peabody that targets conservation when demands are especially high. More specifically, the summer withdrawal cap is intended to reduce the difference between summer and winter water use. Based on the four-year period 1999 thru 2002, communities with an average summer to winter withdrawal ratio of 1.4 or greater are required to reduce the summer to winter difference in withdrawal volumes by 50% beginning in calendar year 2004. Communities with an average summer to winter withdrawal ratio that is less than 1.4 are required to reduce the summer to winter difference by 25% beginning in calendar year 2004. The median of the four- year summer to winter withdrawal ratio is 1.4. Reductions in the summer to winter difference are based on the year, within the four-year period from 1999 thru 2002, when seasonal water use was highest.

In the four-year period 1999 thru 2002, Peabody had a summer to winter withdrawal ratio of 1.34. Peabody experienced its highest summer water use in 1999. Peabody shall achieve a 25% reduction in the difference between its 1999 summer and winter water use. To achieve this reduction, Peabody shall keep its water use at or below an average daily volume of 6.66 MGD from May 1st thru September 30th. Peabody's overall system-wide water use from May 1st thru September 30th shall not exceed 1018.98 million gallons. In 2000, Peabody limited its summer water use to an average daily volume of 6.39 MGD for the five-month summer period.

To improve streamflows so that the Ipswich River can once again function as a viable habitat for aquatic life adapted to riverine conditions and to ensure that the Ipswich River remains a reliable source of safe drinking water, DEP has required the following restrictions on nonessential outside water use:

1. All permittees withdrawing water from the Ipswich River Basin for public water supply purposes shall institute voluntary restrictions on nonessential outside water use whenever streamflow in the Ipswich River falls below 0.56 cfs for three consecutive days in the period from May 1st thru September 30th. The streamflow threshold of 0.56 cfs is based on wetted perimeter flow for a natural site in the Ipswich River as determined by the USGS habitat assessment study. A fully wetted channel bed in riffles is an index of the carrying capacity of a stream that is proportional to fish-food producing areas.
2. All permittees withdrawing water from the Ipswich River Basin for public water supply purposes shall implement and enforce mandatory restrictions on nonessential outside water use whenever streamflow falls below 0.42 cfs for three consecutive days in the period from May 1st thru September 30th. Based on evaluation of streamflow requirements, USGS determined that 0.42 cfs is a reasonable target for streamflow for habitat protection necessary to support aquatic life adapted to riverine conditions. At a minimum, mandatory restrictions on nonessential outside water use shall include restrictions requiring hand-held hoses only and limiting the hours for outside watering to exclude 9 a.m. to 5 p.m. when evapotranspiration is typically at its highest. Notwithstanding the foregoing, irrigation of public parks and recreational fields by means of automatic sprinklers equipped with moisture sensors or similar control technology may also be permitted outside of the hours 9 a.m. to 5 p.m. Enforcement of mandatory restrictions shall include the assessment of penalties or the imposition of fines for violations.

A notice of the voluntary and mandatory restrictions shall be published in the local newspaper. When streamflow is greater than the thresholds set forth above for a period of seven consecutive days, the corresponding level of restrictions may be lifted.

The restrictions set forth above apply to nonessential outside water use. The term “nonessential outside water use” includes uses that do not have health or safety impacts, are not required by regulation, and are not needed to meet the core functions of a business or other organization. Examples of nonessential outside water uses include irrigation of lawns and ornamental plants; washing of vehicles unless necessary for operator safety (subject to the exceptions set forth below); washing of building exteriors, outside structures, streets, sidewalks, and parking lots (with the exceptions set forth below); the filling of swimming pools and hot tubs; and the operation of decorative pools and fountains. Examples of essential outside water uses may include water use for the production of food and fiber and the maintenance of livestock and poultry; outside water use by plant nurseries to maintain their stock; the watering of golf course greens; the washing of vehicles by commercial car washes, maintenance facilities and dealers, and the washing of exterior building surfaces including windows, parking lots, driveways, or sidewalks, prior to application of paint preservatives or stucco or for the preparation of the surface prior to paving or repointing of bricks, or if required by health and safety regulations.

To enable the City to comply with the Ipswich River Basin Performance Standards for residential per capita water use and seasonal water use, the Modified Permit requires the development and implementation of an enhanced water conservation plan in the event that in any year beginning with calendar year 2004, the City is not in compliance with these Performance Standards. In light of this provision, DEP intends to review at least annually the progress that the City has made in complying with the Ipswich River Basin Performance Standards and the Modified Permit. Moreover, DEP will take whatever action it deems appropriate to bring permittees into compliance with Performance Standards and the modified permits, including without limitation requiring more stringent restrictions on nonessential outside water use, further modifying the permits in the Ipswich River Basin and/or initiating enforcement actions with and without the assessment of civil administrative penalties. That being said, DEP remains committed to working with the City and all the permittees in the Ipswich River Basin so that the Ipswich River may once again sustain all its uses as a habitat for aquatic life and wildlife that are adapted to riverine conditions, a place for primary and secondary contact recreation and a reliable source of safe drinking water.

The success of this effort depends at least in part on the ability of all the communities that withdraw water from the Ipswich River Basin to work together. The Department wishes to commend the City for agreeing to supply water to the Town of Danvers in case of emergency. In addition, the Modified Permit includes requirements that go beyond the jurisdiction of the Water Department. Thus, it is essential that all City departments, boards, officials and employees assist in the implementation of the actions required by the Modified Permit, including without limitation the water conservation requirements and the retrofit of public buildings.

Special Requirements for the City of Peabody.

The City has not yet completed the metering and retrofit with low flow devices of its public buildings. The Modified Permit requires that on or before July 1, 2005, the City shall document to the Department that all public buildings have been metered and furnished with water saving devices.

The City has not submitted all the information required by the Annual Statistical Report including all the categories of water consumption information. The Modified Permit requires the City to report this information beginning with calendar year 2005.

Procedure for Appeal

The City has the right to appeal the Modified Permit in accordance with 310 CMR 36.40. Any such appeal must be received by the Department within twenty-one days of the date of receipt of the Modified Permit. Only the portions of the Modified Permit that reflect a modification of the City's current permit may be the subject of the appeal, since the appeal period associated with the City's current permit has expired.

If you have any questions regarding the Modified Permit, please contact Kellie O'Keefe at 978-661-7765. Please note that the Northeast Regional Office of DEP will be moving in mid to late June to One Winter Street in Boston. Please check the DEP website www.state.ma.us/dep/nero for further information on how to contact regional staff after the move.

Very truly yours,

Madelyn Morris
Deputy Regional Director
Bureau of Resource Protection

CC: Duane LeVangie, WMA Boston

Peter Smyrnios, Water Superintendent, 50 Farm Avenue, Peabody, MA 01960

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